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A NEW CONCEPT OF A LOW COST INTEGRATED STEELWORKS FOR EMERGENT COUNTRIES

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A NEW CONCEPT OF A LOW COST INTEGRATED STEELWORKS FOR EMERGENT COUNTRIES

by

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1. Until recently it has generally been accepted that no integrated steel plant could be economically feasible unless its output were of the order of one million tonnes per year. In order to achieve economical operation at these outputs, the plants were built up of large tonnage producing units incorporating a high degree of mechanical handling, so as to reduce the labour content to a minimum in areas where labour is a high cost factor.

2. The requirement of an emergent country at the start of the development of a steel industry is for a smaller production than one million tonnes in any one plant, and owing to transport difficulties, a number of smaller 100,000 tonne plants producing fairly simple end products are more practical. In these countries labour costs are usually very low, there is a large pool of labour requiring work and plants can be designed to take account of these factors at the same time keeping the capital cost to a minimum, which is important owing to shortage of foreign currency.

3. Investigations into the available raw materials in many such countries indicate that small blast furnaces using indifferent coke can supply the iron, small L.D. converters convert the iron to steel and rolling mills for such products as reinforcing bar, light sections etc., can be designed at a lower capital cost than those currently installed. In this Paper proposals are developed for such installations, which have capital costs appreciably lower than previously published schemes for small integrated steelworks.

4. New methods for the direct reduction of ore to steel were at one time believed to be the solution for steel plants for the emergent countries. As these processes have not yet been tried, except in a few very special circumstances, they are not recommended for the initial operation in an emergent country. In the present proposals, new ground has been cut by the replacement of the primary mills together with their soaking pits and other equipment by the installation of continuous casting machines, the development of which has now reached the point where their installation can be confidently recommended.

5. Site conditions vary widely in areas where small steelworks might be installed. This has necessitated the making of certain assumptions when arriving at cost data in this Paper, but these assumptions have been indicated with a view to enabling those responsible for the formulation of new schemes to assess the particular circumstances applicable in their own cases, in preparation for detailed discussions with their Consulting Engineers and Plant Builders.

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